jbr
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M/023/007

March 6, 2001



Mr. Don Ostler
Director
Utah Division of Water Quality
288 North 1460 West
P.O. Box 144870
Salt Lake City, Utah 84114-4870

RE: North Lily Mining Company - Post Closure Fluid Management System (PCFMS) Plan: Final Design Modifications

Dear Mr. Ostler:

This letter and the referenced attachments represent North Lily Mining Company's (North Lily) revised and supplemental PCFMS design amendments. This letter includes the results of additional percolation tests and our revised response to the e-mailed information request of January 24, 2001 from Beth Wondimu. As reported during the last regularly scheduled project progress conference call on February 20, supplemental percolation tests required by the Division of Water Quality's (DWQ) Design Section were necessary in order to complete the PCFMS design. JBR Environmental Consultants, Inc. (JBR), as consultant to North Lily, has prepared and now submits this letter response on behalf of North Lily.

Four additional percolation tests have been completed in the area of the revised leachfield location. The location of these tests, designated W, X, Y, and Z , are shown on the revised topographic and facility location map, Attachment 1. The results of these tests are shown in the table provided in Attachment 2 entitled, North Lily Percolation Test Information.

Our responses to the eight questions presented in the e-mail message are presented below.

1. The capacity of the leachfield was reported incorrectly in the letter of January 12, 2001 by JBR. The leachfield area shown on the drawing attached to that letter, which was reported to have a capacity of approximately 7, 8 or 10 gpm, depending on the permeability value assumed (either that from Test I, G, or H), was incorrect. The application area for the leachfield depicted and proposed in that submittal had a capacity of 5 gpm using the infiltration rate for Test G (1.13 gallons/square foot/day). The infiltration rate from Test I (1.02 gallons/square foot/day) would have resulted in a

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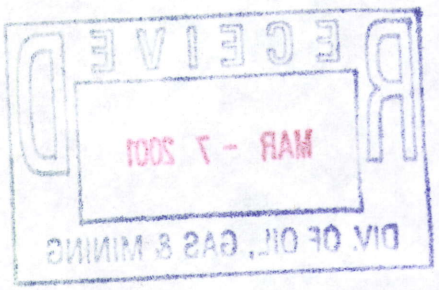
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capacity of only 4.5 gpm, while the permeability rate for Test Pit H (1.48 gallons/square foot/day) would provide a capacity of 6.5 gpm.

Based upon this corrected data and observations made during a site visit with DWQ and DOGM representatives on February 1, 2000, the proposed location for the leachfield was revised. The supplemental percolation tests were carried out in the general area of the revised leachfield location. Based upon these results, the modified leachfield planar design and location shown on Attachment 1 are now proposed. As shown in Attachment 1, six percolation tests were completed at the approximate elevation of the proposed pipe gallery (82 to 83 feet - reference site survey datum) within the proposed footprint area. One of the four new percolation tests, designated W, had an unacceptably low permeability and the proposed footprint has been established to avoid this area (Attachment 1). In compliance with DWQ requirements, the lowest percolation rate for any of the tests done within the proposed leachfield footprint has been used for system sizing and capacity assessment. This percolation rate, 1.0458 gallons/square foot/day, was encountered in test Z. At this rate, the preliminary leachfield size previously proposed would have the capacity to infiltrate up to 5 gpm of draindown volume from the leach pad.

The initial target capacity for the leachfield of 10 gpm was reduced to 7 gpm in a response letter from the undersigned to Mr. Ostler of DWQ dated January 12, 2001. Space limitations make construction of a leachfield with a 7 gpm capacity difficult to fit into the available space. In addition, in order to build a leachfield with a 7 gpm capacity, the facility would need to be constructed on two levels, resulting in the need for additional percolation testing and design work. Construction costs for a two-level system with a 7 gpm capacity would be much greater than those for the preliminary leachfield size initially proposed.

The selection of a 7-gpm-capacity leachfield was the result of a conservative design capacity of twice the recent and fairly long-standing draindown rate of approximately 3.5 gpm. Given the space limitations and well-known project funding limitations, an alternative leachfield capacity of 6.0 gpm is now proposed. The leachfield layout shown on Attachment 1 is designed to have this capacity. Design specifics for this revised leachfield capacity are as follows:

- design capacity based upon the lowest percolation test rate of 1.0458 gallons/square foot/day;
- maximum daily draindown volume at 6 gpm of 8640 gallons;
- total system application area of 8262 square feet;
- resulting in 2750 linear feet of infiltration trench and perforated pipe.

The layout shown on Attachment 1 has this capacity and can be constructed on a single level.

2. Soil will be removed from the proposed facility location by a D-8 bulldozer to an approximate elevation of 86 feet. Excavation side slopes will be 3h:1v or less and the excavated soil will be stored to the north of the proposed leachfield location during installation of the system. From that depth the leachfield trenches will be excavated to a depth of four feet, resulting in a leachfield elevation of 82 feet. Smearing and compaction are not expected to be factors in the infiltration zone four feet below the bulldozed surface. Following installation of the leachfield, the excavated soil will be replaced to the approximate original grade so that runoff will not accumulate above the leachfield. During construction, a temporary two-foot-high berm will be built to the north and northeast of the leachfield in order to direct all surface water flow to the west side of the leachfield and toward the existing culverts beneath U.S. Highway 6. The location of the berm is shown on Attachment 1. The final site regrading will leave the surface above the leachfield slightly crowned so that standing water will not collect in this location. An appropriately placed low earthen berm will be place on the uphill sides of the leachfield location as necessary to prevent surface water runoff from accumulating above the leachfield.

3. Refer to the attached map to find the location of the two equalizing basins (distribution boxes).

4. The proposed location of the gravity drain line is also shown on Attachment 1.

5. The topographic map (Attachment 1) has been expanded to show the toe and crest of the barren and overflow pond berms as well as the adjacent topography. As this map shows, no impact to the pond berms would occur due to leachfield construction. Note that the proposed gravity drain line from the pad margin distribution box to the leachfield distribution box is shown to cross a corner of the barren pond. This location was selected to prevent the need for right angle bends in the pipeline; however, to locate the pipeline in this location, use of the barren pond for site debris disposal (including the entire pond PVC liner) would be confined to the western half or two-thirds of the pond and earthen fill would be placed in the eastern portion of the pond to enable burial of the pipe. If the debris volume is such that this will not be possible, the proposed final pipeline location would be modified and submitted to DWQ for approval.

6. The location of the sump pump in the pregnant pond is also shown on Attachment 1. The initial pump-supplied temporary line is located adjacent to the north and west sides of the barren pond, as shown on the map. Two attached sketches (Attachment 3), Sketch 1 and Sketch 2, show Typical Trench Layout and Lateral Connection and Typical Lateral Trench Cross-section, respectively.

7. The leach field is in the only location on the North Lily property where all of the design requirements approved by DWQ could be met. The reclamation of the ponds was an issue that was discussed when designing and locating the leach field. When the

reclamation of the ponds is initiated, the location of the leach field will be flagged and otherwise protected as necessary so there will be no damage to the leach field. Final regarding plans will be modified as necessary to prevent impacts to the leachfield during construction or from runoff that flows through the area to the existing culvert beneath U.S. Highway 6.

8. The leachfield, pipelines, and distribution boxes would remain in place following facility closure so that any ongoing draindown that might occur is able to continue to flow to the leachfield.

This letter and attachments, along with the January 12, 2000 letter referenced above and the original PCFMS "Final" design, comprise the complete design package for the North Lily Silver City PCFMS submitted for DWQ review and consideration. Please call the undersigned with any questions you may have.

Sincerely,

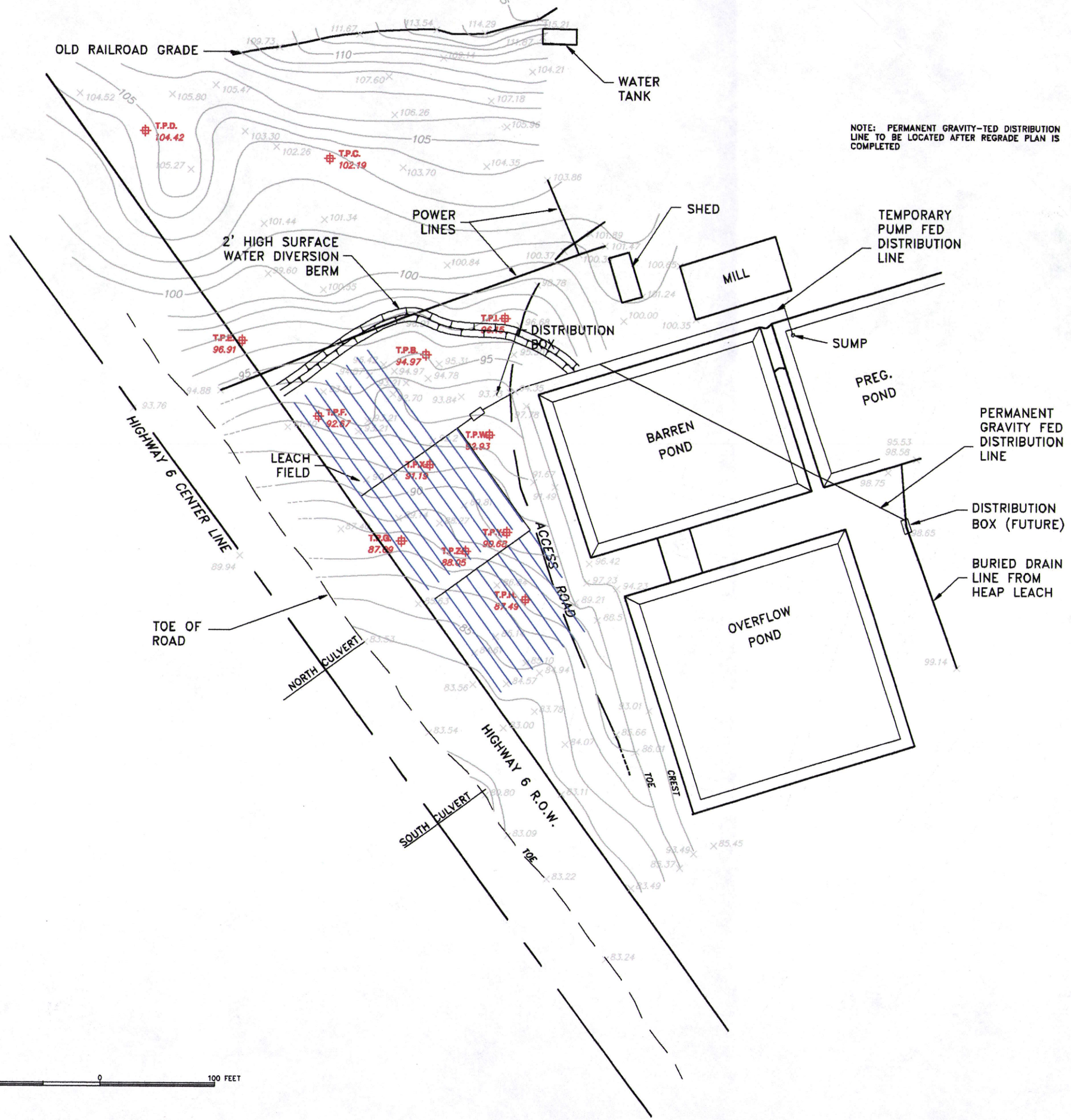
NLC Robert J. Bayer

Robert J. Bayer
Managing Principal

Enclosure

cc: Dennis Frederick, DWQ
Fred Pehrson, DWQ
Mary Ann Wright, Division of Oil Gas and Mining
Wayne Hedburg, Division of Oil Gas and Mining
Stephen Flechner, North Lily Mining Company
Mike Keller, VanCott Bagley

**ATTACHMENT 1**
**Topographic and Facility Location Map**




# NORTH LILY

REVISED TOPOGRAPHIC AND FACILITY LOCATION MAP

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

| DESIGN BY | DRAWN BY | CH'D BY | SCALE |
|---|---|---|---|
| JS | CP | | 1"=100' |

| REVISION | DATE DRAWN |
|---|---|
| | 1/29/01 |
| | 2/10/01 |
| | 3/6/01 |

North Lily\nillilyt-2.dwg

**ATTACHMENT 2**
**North Lily Percolation Test Information**

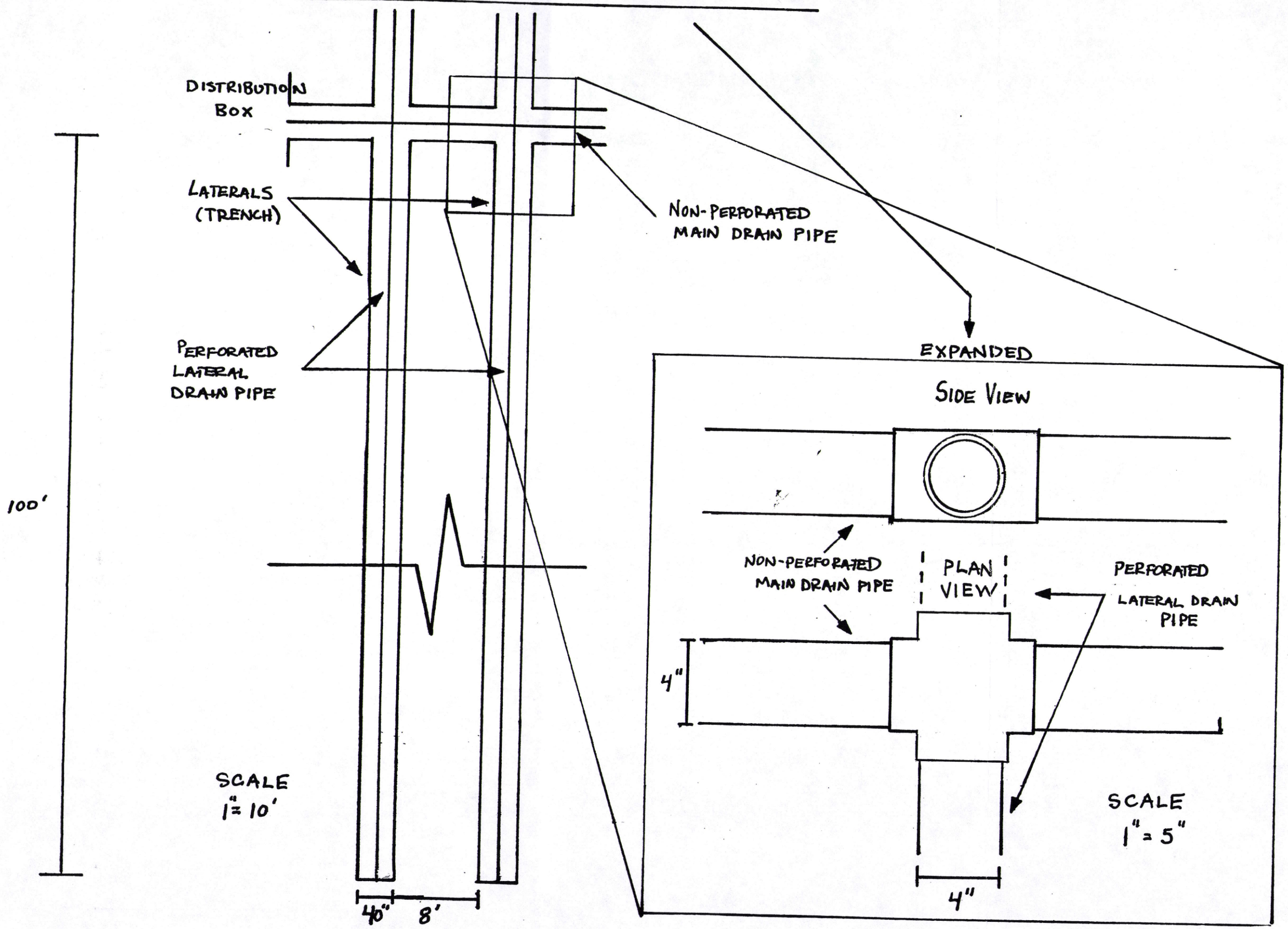
# Percolation Rates @ No.Lily

| | Inches/30 Minutes | Inches/Hour | Minutes/Inch | Perc Rate cm/sec | gal/ft2/day | Elevation | Zone |
|---|---|---|---|---|---|---|---|
| **Pit A** | 1.313 | 2.625 | 22.86 | 0.001852 | 1.04583 | N/A * | N/A |
| **Pit B** | 0.625 | 1.250 | 48.00 | 0.000882 | 0.72169 | 91 * | 2 |
| **Pit C** | 3.250 | 6.500 | 9.23 | 0.004586 | 1.64570 | 98 * | 1 |
| **Pit D** | 3.188 | 6.375 | 9.41 | 0.004498 | 1.62980 | 98 * | 1 |
| **Pit E** | 0.125 | 0.250 | 240.00 | 0.000176 | 0.32275 | 90 * | 3 |
| **Pit F** | 2.688 | 5.376 | 11.16 | 0.003793 | 1.49666 | 86 * | 5 |
| **Pit G** | 2.188 | 4.376 | 13.71 | 0.003087 | 1.35031 | 82 * | 6 |
| **Pit H** | 2.688 | 5.376 | 11.16 | 0.003793 | 1.49666 | 82 * | 5 |
| **Pit I** | 1.250 | 2.500 | 24.00 | 0.001764 | 1.02062 | 82 * | 4 |
| **Pit W** | 0.375 | 0.750 | 80.00 | 0.000529 | 0.55902 | 83 | N/A |
| **Pit X** | 1.750 | 3.500 | 17.14 | 0.002469 | 1.20761 | 83 | N/A |
| **Pit Y** | 2.625 | 5.250 | 11.43 | 0.003704 | 1.47902 | 83 | N/A |
| **Pit Z** | 1.313 | 2.625 | 22.86 | 0.001852 | 1.04583 | 83 | N/A |

(*) **Note:** The Elevations reported here are all relative and were calculated using data from several survey trips to the area. The control point used was assigned a 100 foot elevation. The highlighted test pits that are those located within the leach field foot print.

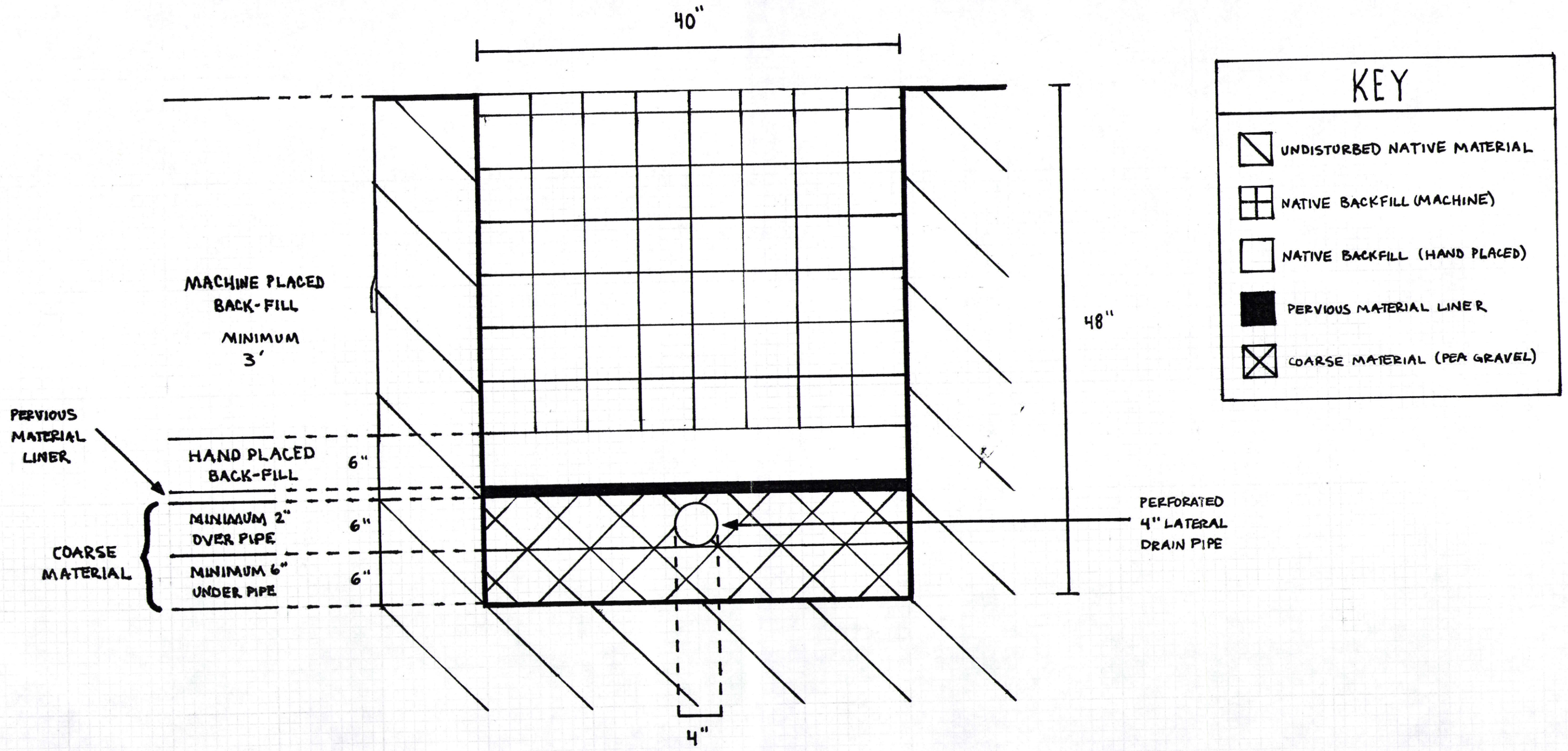
**SKETCH 1**
**Typical Trench and Layout and Lateral Connection**

# TYPICAL TRENCH LAYOUT AND LATERAL CONNECTION



# NORTH LILY

## A TYPICAL LATERAL TRENCH X-SECTION




J. SAGE 03/06/01